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ANALYTICAL REPORT

PROJECT NO. 100.58.15

EMD CHEMICALS

Lot #: A3K210285

Dan Weed

The Payne Firm, Inc.
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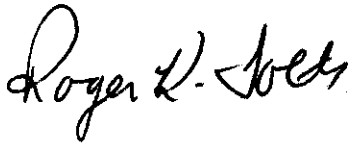
Cincinnati, OH 45242

SEVERN TRENT LABORATORIES, INC.



Roger K. Toth
Project Manager

December 9, 2003

CASE NARRATIVE

A3K210285

The following report contains the analytical results for five water samples submitted to STL North Canton by The Payne Firm, Inc. from the EMD Chemicals Site, project number 100.58.15. The samples were received November 21, 2003, according to documented sample acceptance procedures.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. Preliminary results were provided to Dan Weed on December 03, 2003. A summary of QC data for these analyses is included at the back of the report.

STL North Canton attests to the validity of the laboratory data generated by STL facilities reported herein. All analyses performed by STL facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. STL's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT."

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 2.3°C.

GC/MS VOLATILES

The analytical results met the requirements of the laboratory's QA/QC program.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the repreparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)	Semivolatile (GC/MS)	Metals
Methylene chloride	Phthalate Esters	Copper
Acetone		Iron
2-Butanone		Zinc
		Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS
(Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the repreparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be reprepped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048),
Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001),
New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024),
Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003),
Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190),NAVY, ARMY,
USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

EXECUTIVE SUMMARY - Detection Highlights

A3K210285

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MW-504/112003 11/20/03 11:00 001				
Chloroform	4.2	1.0	ug/L	SW846 8260B
Trichloroethene	1.6	1.0	ug/L	SW846 8260B
MW-505A/112003 11/20/03 11:36 002				
1,4-Dioxane	5800	2200	ug/L	SW846 8260B
Vinyl chloride	150	11	ug/L	SW846 8260B
1,2-Dichloroethene (total)	340	22	ug/L	SW846 8260B
1,2-Dichloroethane	160	11	ug/L	SW846 8260B
MW-505B/112003 11/20/03 11:42 003				
1,4-Dioxane	10000	2000	ug/L	SW846 8260B
Vinyl chloride	33	10	ug/L	SW846 8260B
1,2-Dichloroethene (total)	41	20	ug/L	SW846 8260B
MW-508/112003 11/20/03 12:27 005				
1,4-Dioxane	630	200	ug/L	SW846 8260B
1,2-Dichloroethene (total)	3.3	2.0	ug/L	SW846 8260B

ANALYTICAL METHODS SUMMARY

A3K210285

PARAMETER	ANALYTICAL METHOD
Volatile Organics by GC/MS	SW846 8260B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A3K210285

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
F5D1E	001	MW-504/112003	11/20/03	11:00
F5D1H	002	MW-505A/112003	11/20/03	11:36
F5D1J	003	MW-505B/112003	11/20/03	11:42
F5D1K	004	MW-507/112003	11/20/03	12:06
F5D1L	005	MW-508/112003	11/20/03	12:27

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PAYNE FIRM INC.

Client Sample ID: MW-504/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-001 **Work Order #...:** F5D1E1AA **Matrix.....:** WG
Date Sampled...: 11/20/03 11:00 **Date Received..:** 11/21/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 1 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
Acetonitrile	ND	20	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Chloroprene	ND	2.0	ug/L
3-Chloropropene	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorofluoromethane	ND	2.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethyl methacrylate	ND	1.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutanol	ND	50	ug/L
Methacrylonitrile	ND	2.0	ug/L
Methyl methacrylate	ND	2.0	ug/L
Propionitrile	ND	4.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Chloromethane	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	2.0	ug/L
Chloroform	**4.2**	**1.0**	**ug/L**
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L

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PAYNE FIRM INC.

Client Sample ID: MW-504/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-001 **Work Order #...:** F5D1E1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	**1.6**	**1.0**	**ug/L**
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	109	(73 - 122)
1,2-Dichloroethane-d4	105	(61 - 128)
Toluene-d8	96	(76 - 110)
4-Bromofluorobenzene	82	(74 - 116)

PAYNE FIRM INC.

Client Sample ID: MW-505A/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-002 **Work Order #...:** F5D1H1AA **Matrix.....:** WG
Date Sampled...: 11/20/03 11:36 **Date Received..:** 11/21/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 11.11 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,2-Dibromo-3-chloropropane (DBCP)	ND	22	ug/L
Trichlorofluoromethane	ND	11	ug/L
Acetonitrile	ND	220	ug/L
Acrolein	ND	220	ug/L
Acrylonitrile	ND	220	ug/L
Chloroprene	ND	22	ug/L
3-Chloropropene	ND	22	ug/L
1,2-Dibromoethane	ND	11	ug/L
Dibromomethane	ND	11	ug/L
trans-1,4-Dichloro-2-butene	ND	11	ug/L
Dichlorofluoromethane	ND	22	ug/L
1,4-Dioxane	**5800**	**2200**	**ug/L**
Ethyl methacrylate	ND	11	ug/L
Iodomethane	ND	11	ug/L
Isobutanol	ND	560	ug/L
Methacrylonitrile	ND	22	ug/L
Methyl methacrylate	ND	22	ug/L
Propionitrile	ND	44	ug/L
1,1,1,2-Tetrachloroethane	ND	11	ug/L
1,2,3-Trichloropropane	ND	11	ug/L
Vinyl acetate	ND	22	ug/L
Chloromethane	ND	11	ug/L
Bromomethane	ND	11	ug/L
Vinyl chloride	**150**	**11**	**ug/L**
Chloroethane	ND	11	ug/L
Methylene chloride	ND	11	ug/L
Acetone	ND	110	ug/L
Carbon disulfide	ND	11	ug/L
1,1-Dichloroethene	ND	11	ug/L
1,1-Dichloroethane	ND	11	ug/L
1,2-Dichloroethene (total)	**340**	**22**	**ug/L**
Chloroform	ND	11	ug/L
1,2-Dichloroethane	**160**	**11**	**ug/L**
2-Butanone	ND	110	ug/L
1,1,1-Trichloroethane	ND	11	ug/L
Carbon tetrachloride	ND	11	ug/L

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PAYNE FIRM INC.

Client Sample ID: MW-505A/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-002 **Work Order #...:** F5D1H1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromodichloromethane	ND	11	ug/L
1,2-Dichloropropane	ND	11	ug/L
cis-1,3-Dichloropropene	ND	11	ug/L
Trichloroethene	ND	11	ug/L
Dibromochloromethane	ND	11	ug/L
1,1,2-Trichloroethane	ND	11	ug/L
Benzene	ND	11	ug/L
trans-1,3-Dichloropropene	ND	11	ug/L
Bromoform	ND	11	ug/L
4-Methyl-2-pentanone	ND	110	ug/L
2-Hexanone	ND	110	ug/L
Tetrachloroethene	ND	11	ug/L
1,1,2,2-Tetrachloroethane	ND	11	ug/L
Toluene	ND	11	ug/L
Chlorobenzene	ND	11	ug/L
Ethylbenzene	ND	11	ug/L
Styrene	ND	11	ug/L
Xylenes (total)	ND	22	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	109	(73 - 122)
1,2-Dichloroethane-d4	114	(61 - 128)
Toluene-d8	102	(76 - 110)
4-Bromofluorobenzene	83	(74 - 116)

PAYNE FIRM INC.

Client Sample ID: MW-505B/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-003 **Work Order #...:** F5D1J1AA **Matrix.....:** WG
Date Sampled...: 11/20/03 11:42 **Date Received..:** 11/21/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,2-Dibromo-3-chloropropane (DBCP)	ND	20	ug/L
Trichlorofluoromethane	ND	10	ug/L
Acetonitrile	ND	200	ug/L
Acrolein	ND	200	ug/L
Acrylonitrile	ND	200	ug/L
Chloroprene	ND	20	ug/L
3-Chloropropene	ND	20	ug/L
1,2-Dibromoethane	ND	10	ug/L
Dibromomethane	ND	10	ug/L
trans-1,4-Dichloro-2-butene	ND	10	ug/L
Dichlorofluoromethane	ND	20	ug/L
1,4-Dioxane	**10000**	**2000**	**ug/L**
Ethyl methacrylate	ND	10	ug/L
Iodomethane	ND	10	ug/L
Isobutanol	ND	500	ug/L
Methacrylonitrile	ND	20	ug/L
Methyl methacrylate	ND	20	ug/L
Propionitrile	ND	40	ug/L
1,1,1,2-Tetrachloroethane	ND	10	ug/L
1,2,3-Trichloropropane	ND	10	ug/L
Vinyl acetate	ND	20	ug/L
Chloromethane	ND	10	ug/L
Bromomethane	ND	10	ug/L
Vinyl chloride	**33**	**10**	**ug/L**
Chloroethane	ND	10	ug/L
Methylene chloride	ND	10	ug/L
Acetone	ND	100	ug/L
Carbon disulfide	ND	10	ug/L
1,1-Dichloroethene	ND	10	ug/L
1,1-Dichloroethane	ND	10	ug/L
1,2-Dichloroethene (total)	**41**	**20**	**ug/L**
Chloroform	ND	10	ug/L
1,2-Dichloroethane	ND	10	ug/L
2-Butanone	ND	100	ug/L
1,1,1-Trichloroethane	ND	10	ug/L
Carbon tetrachloride	ND	10	ug/L

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PAYNE FIRM INC.

Client Sample ID: MW-505B/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-003 **Work Order #...:** F5D1J1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromodichloromethane	ND	10	ug/L
1,2-Dichloropropane	ND	10	ug/L
cis-1,3-Dichloropropene	ND	10	ug/L
Trichloroethene	ND	10	ug/L
Dibromochloromethane	ND	10	ug/L
1,1,2-Trichloroethane	ND	10	ug/L
Benzene	ND	10	ug/L
trans-1,3-Dichloropropene	ND	10	ug/L
Bromoform	ND	10	ug/L
4-Methyl-2-pentanone	ND	100	ug/L
2-Hexanone	ND	100	ug/L
Tetrachloroethene	ND	10	ug/L
1,1,2,2-Tetrachloroethane	ND	10	ug/L
Toluene	ND	10	ug/L
Chlorobenzene	ND	10	ug/L
Ethylbenzene	ND	10	ug/L
Styrene	ND	10	ug/L
Xylenes (total)	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	112	(73 - 122)
1,2-Dichloroethane-d4	111	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	81	(74 - 116)

PAYNE FIRM INC.

Client Sample ID: MW-507/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-004 **Work Order #...:** F5D1K1AA **Matrix.....:** WG
Date Sampled...: 11/20/03 12:06 **Date Received..:** 11/21/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 1 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
Acetonitrile	ND	20	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Chloroprene	ND	2.0	ug/L
3-Chloropropene	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorofluoromethane	ND	2.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethyl methacrylate	ND	1.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutanol	ND	50	ug/L
Methacrylonitrile	ND	2.0	ug/L
Methyl methacrylate	ND	2.0	ug/L
Propionitrile	ND	4.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Chloromethane	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L

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PAYNE FIRM INC.

Client Sample ID: MW-507/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-004 **Work Order #...:** F5D1K1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	111	(73 - 122)
1,2-Dichloroethane-d4	104	(61 - 128)
Toluene-d8	96	(76 - 110)
4-Bromofluorobenzene	81	(74 - 116)

PAYNE FIRM INC.

Client Sample ID: MW-508/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-005 **Work Order #...:** F5D1L1AA **Matrix.....:** WG
Date Sampled...: 11/20/03 12:27 **Date Received..:** 11/21/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 1 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
Trichlorofluoromethane	ND	1.0	ug/L
Acetonitrile	ND	20	ug/L
Acrolein	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Chloroprene	ND	2.0	ug/L
3-Chloropropene	ND	2.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorofluoromethane	ND	2.0	ug/L
1,4-Dioxane	**630**	**200**	**ug/L**
Ethyl methacrylate	ND	1.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutanol	ND	50	ug/L
Methacrylonitrile	ND	2.0	ug/L
Methyl methacrylate	ND	2.0	ug/L
Propionitrile	ND	4.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Chloromethane	ND	1.0	ug/L
Bromomethane	ND	1.0	ug/L
Vinyl chloride	ND	1.0	ug/L
Chloroethane	ND	1.0	ug/L
Methylene chloride	ND	1.0	ug/L
Acetone	ND	10	ug/L
Carbon disulfide	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethene (total)	**3.3**	**2.0**	**ug/L**
Chloroform	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
2-Butanone	ND	10	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L

(Continued on next page)

PAYNE FIRM INC.

Client Sample ID: MW-508/112003

GC/MS Volatiles

Lot-Sample #...: A3K210285-005 **Work Order #...:** F5D1L1AA **Matrix.....:** WG

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Bromodichloromethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Benzene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	10	ug/L
2-Hexanone	ND	10	ug/L
Tetrachloroethene	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Styrene	ND	1.0	ug/L
Xylenes (total)	ND	2.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	113	(73 - 122)
1,2-Dichloroethane-d4	112	(61 - 128)
Toluene-d8	102	(76 - 110)
4-Bromofluorobenzene	83	(74 - 116)

QUALITY CONTROL SECTION

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3K210285 **Work Order #...:** F5W1E1AA **Matrix.....:** WATER
MB Lot-Sample #: A3L030000-230

Prep Date.....: 12/02/03
Analysis Date..: 12/02/03 **Prep Batch #...:** 3337230
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetonitrile	ND	20	ug/L	SW846 8260B
Acrolein	ND	20	ug/L	SW846 8260B
Acrylonitrile	ND	20	ug/L	SW846 8260B
Chloroprene	ND	2.0	ug/L	SW846 8260B
3-Chloropropene	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane	ND	1.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L	SW846 8260B
Dichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
1,4-Dioxane	ND	200	ug/L	SW846 8260B
Ethyl methacrylate	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	1.0	ug/L	SW846 8260B
Iodomethane	ND	1.0	ug/L	SW846 8260B
Isobutanol	ND	50	ug/L	SW846 8260B
Methacrylonitrile	ND	2.0	ug/L	SW846 8260B
Methyl methacrylate	ND	2.0	ug/L	SW846 8260B
Propionitrile	ND	4.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
Vinyl acetate	ND	2.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L	SW846 8260B
Chloromethane	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A3K210285 **Work Order #...:** F5W1E1AA **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	113	(73 - 122)
1,2-Dichloroethane-d4	109	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	86	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A3K210285 **Work Order #...:** F5W1E1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: A3L030000-230 F5W1E1AD-LCSD
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**87**	**(63 - 130)**			**SW846 8260B**
	95	**(63 - 130)**	**9.0**	**(0-20)**	**SW846 8260B**
Trichloroethene	**85**	**(75 - 122)**			**SW846 8260B**
	91	**(75 - 122)**	**6.5**	**(0-20)**	**SW846 8260B**
Benzene	**91**	**(80 - 116)**			**SW846 8260B**
	96	**(80 - 116)**	**5.7**	**(0-20)**	**SW846 8260B**
Toluene	**97**	**(74 - 119)**			**SW846 8260B**
	102	**(74 - 119)**	**4.7**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**92**	**(76 - 117)**			**SW846 8260B**
	99	**(76 - 117)**	**7.6**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(73 - 122)
	100	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
	104	(61 - 128)
Toluene-d8	103	(76 - 110)
	106	(76 - 110)
4-Bromofluorobenzene	107	(74 - 116)
	109	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A3K210285 **Work Order #...:** F5GV91CW-MS **Matrix.....:** WATER
MS Lot-Sample #: A3K220197-013 F5GV91CX-MSD
Date Sampled...: 11/21/03 14:15 **Date Received..:** 11/22/03
Prep Date.....: 12/02/03 **Analysis Date..:** 12/02/03
Prep Batch #...: 3337230
Dilution Factor: 83.33

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**91**	**(62 - 130)**			**SW846 8260B**
	97	**(62 - 130)**	**5.9**	**(0-20)**	**SW846 8260B**
Trichloroethene	**97**	**(62 - 130)**			**SW846 8260B**
	98	**(62 - 130)**	**1.9**	**(0-20)**	**SW846 8260B**
Benzene	**98**	**(78 - 118)**			**SW846 8260B**
	100	**(78 - 118)**	**2.0**	**(0-20)**	**SW846 8260B**
Toluene	**97**	**(70 - 119)**			**SW846 8260B**
	98	**(70 - 119)**	**1.1**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**95**	**(76 - 117)**			**SW846 8260B**
	98	**(76 - 117)**	**3.2**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(73 - 122)
	106	(73 - 122)
1,2-Dichloroethane-d4	110	(61 - 128)
	108	(61 - 128)
Toluene-d8	104	(76 - 110)
	104	(76 - 110)
4-Bromofluorobenzene	105	(74 - 116)
	105	(74 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

The Payne Firm, Inc.
Environmental Consultants
11231 Cornell Park Drive
Cincinnati, Ohio 45242
513-489-2255 Fax: 513-489-2533

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CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
100.58.15	EMD CHEMICALS

SAMPLERS: (Signature) Curt Kubler

STA. NO.	DATE 2003	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOC-8260
	11/20	1100		X	MW-504 / 112003	3	X
	11/20	1136		X	MW-505A / 112003	3	X
	11/20	1142		X	MW-505B / 112003	3	X
	11/20	1206		X	MW-507 / 112003	3	X
	11/20	1227		X	MW-508 / 112003	3	X

REMARKS

ATTN: ROGER TOTH

- ANALYZE PER APPENDIX 9 LIST OF VOC CONSTITUENTS
- RESULTS TO DAN WEED
- NORMAL TURN

1136 11/20/03

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	11/20/03 1400				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Dan Weed	11-21-03 9:50 9:20		

DE 11-21-03

STL North Canton

STL Cooler Receipt Form/Narrative
North Canton Facility

Lot Number: #3K210285

Client: The Payne Firm Project: EMD Chemicals Quote#: _____
Cooler Received on: 11-21-03 Opened on: 11-21-03 by: Dale Ehman (Signature)

Fedx ☐ Client Drop Off ☐ UPS ☐ Airborne ☒ Other: _____
Cooler ☒ Safe ☐ Foam Box ☐ Client Cooler ☐ Other: _____
STL Shipper No#: C1009

1. Were custody seals on the outside of the cooler? Yes ☒ No ☐ Intact? Yes ☒ No ☐ NA ☐
   If YES, Quantity _____
   Were the custody seals signed and dated? Yes ☒ No ☐ NA ☐
2. Shipper's packing slip attached to this form? Yes ☒ No ☐
3. Were custody papers included inside the cooler and relinquished? Yes ☒ No ☐
4. Did you sign the custody papers in the appropriate place? Yes ☒ No ☐
5. Packing material used:

Peanuts ☐ Bubble Wrap ☒ Vermiculite ☐ Foam ☐ None ☐ Other : _____

6. Cooler temperature upon receipt 2.3 °C (see back of form for multiple coolers/temp)

METHOD: Temp Vial ☐ Coolant & Sample ☐ Against Bottles ☐ IR ☒ ICE/H_2O Slurry ☐
COOLANT: Wet Ice ☒ Blue Ice ☐ Dry Ice ☐ Water ☐ None ☐

7. Did all bottles arrive in good condition (Unbroken)? Yes ☒ No ☐
8. Did all bottle labels and tags agree with the custody papers? Yes ☒ No ☐
9. Were samples at the correct pH? (record on back) Yes ☐ No ☐ NA ☒
10. Were correct bottles used for the tests indicated? Yes ☒ No ☐
11. Were air bubbles >6 mm in any VOA vials? Yes ☐ No ☒ NA ☐
12. Was a sufficient amount of sample sent in each bottle? Yes ☒ No ☐

Contacted PM _____ Date: _____ by: _____ via Voice Mail ☐ Verbal ☐ Other ☐
Concerning: _____

√	MACRO	MACRO
1. CHAIN OF CUSTODY		
	SR1A	The chain of custody and sample bottles did not agree. The following discrepancies occurred _____
2. SAMPLE CONDITION		
	SR2A	Sample(s) _____ were received or requested after the recommended holding time had expired.
	SR2B	Sample(s) were received with insufficient volume.
	SR2C	Sample(s) were received in a broken container.
3. SAMPLE PRESERVATION		
	SR3A	Sample(s) _____ were further preserved in sample receiving to meet recommended pH level(s). *Nitric Acid Lot #101503-HNO3; Sulfuric Acid Lot # 112801-H2SO4; Sodium Hydroxide Lot # 101503-NaOH; Hydrochloric Acid Lot # 100902-HCl; Sodium Hydroxide and Zinc Acetate Lot # 112801-CH3COO22N/NaOH*
	SR3B	Sample(s) _____ were received with bubble > 6 mm in diameter (cc: PM)
4. Other (see below or back)		

STL Cooler Receipt Form/Narrative
North Canton Facility

Client ID	pH	Date	Initials

Cooler	Temp	Method	Coolant

Discrepancies Cont.

Macro Name:

Macro Name:

Macro Name:

Other Anomalies:

SEVERN TRENT STL

END OF REPORT